Towards an Old-growth Strategy

Executive summary of old-growth workshop recommendations

Introduction

There are widely held concerns today on the future of British Columbia's remaining old-growth forests. These concerns represent values ranging from their importance as genetic reservoirs to their value as commercial timber.

Our old-growth forests also are an important part of issues and concerns involving:

- natural heritage;
- wilderness preservation;
- tourism values;
- spiritual linkages;
- atmospheric balance; and,
- forest industry viability.

A strategy is needed to deal with our old-growth forests while there are still significant options available.

The British Columbia Forest Service began the process of developing a strategy for the management of old-growth forests by hosting an invitational workshop on the subject in Parksville, B.C. from November 3 to 5, 1989.

Invited delegates represented environmental interest groups, native bands, the forest industry, academic institutions, independent professionals, and federal and provincial resource agencies.

During the workshop, the 80 delegates focussed on the components of an old-growth forests strategy, including:

- definitions;
- objectives;
- priority issues;
- information needs;
- criteria for developing old-growth forests; and,
- recommendations for action.

This is an executive summary of the results of the Parksville workshop. The complete workshop findings are publishedunder the title *Towards an Old-growth Strategy -- Summary of the old- growth workshop* and is available from the IntegratedResources Branch, Ministry of Forests, 1450 Government Street, Victoria, B.C. V8W 3E7.

This executive summary combines the various points of view into a single document. It does not include all the variations or the specific positions of the individual participants or their organizations. This is especially true for parts of the summary which deal with action recommendations.

Definitions

Definitions of old-growth forests should reflect ecological characteristics and social objectives.

A common-language definition should accommodate:

- the differences in old-growth forests in B.C.'s varied biogeoclimatic zones and ecosystems;
- use of the concepts for definition advanced by the B.C. Forest Land-Use Liaison Committee and the U.S. Forest Service;
- the differences in operational definitions based on land management and social objectives advanced by tenure holders, the public, and resource agencies; and,
- use of a less-sophisticated definition for an overview inventory, and, more sophisticated definitions for later research and operational use.

Priority old-growth issues

The information base

An effective old-growth forests inventory is needed to:

- reflect the ecological and socio-economic elements of old-growth forests' definitions; and,
- provide information about old-growth forest stands identified by public groups and by resource agencies as urgent priority.

Province of British Columbia

Ministry of Forests

Research is needed for information on:

- old-growth forest ecosystems' structure, composition, and functioning;
- the needs of old-growth dependent species; and,
- the sizes of areas to be preserved from fragmentation.

Existing forest and other resource inventories must be challenged to provide as much immediate information as possible about old-growth forests, based on the preliminary definitions and the current understanding of old-growth forest management objectives.

Public involvement

An effective, broadly inclusive, public involvement system, which can be employed with confidence by all parties having an interest in old-growth forests, is needed. It must provide opportunities to:

- participate in the early land-use-planning stages and the ongoing resource-management planning;
- identify areas of urgent concern;
- gain access to information;
- reach a consensus on land-use objectives; and,
- provide for resolving conflicts among competing interests, including mechanisms from the local and informal to the provincial and legally structured.

The public involvement process should recognize the need to fund public participants to allow effective access to the decision-making process.

Conservation of options

The government should immediately identify critical old-growth forest areas and defer timber-harvesting on them, while overall old-growth forest needs are properly assessed. These moratoria should be time-limited — for example, two years.

This short-term action should be concurrent with a process of identifying provincially representative areas,

Objectives for old-growth forests management

The objectives proposed for old-growth forests management are:

Social

- to maintain their heritage values; and,
- to maintain their contribution to:
  - existing community lifestyles;
  - outdoor recreation;
  - traditional aboriginal values and culture;
  - environmental education; and,
  - spiritual and aesthetic sanctuary;

Economic

- to maintain their level of economic contribution to government so as to sustain social programs;
- to realize stored timber values while maintaining a sustainable harvest of forest products;
- to use non-timber resources;
- to support environmental tourism;
- to maintain community jobs and economic stability; and,
- to provide a reservoir of employable, but as yet undiscovered, biochemicals.

Environmental

- to maintain bio-diversity and genetic information for the province and as part of our global responsibility;
- to contribute to the management of hydrologic systems, especially in community watersheds; and,
- to contribute to the management of our global carbon reservoir.

Scientific

- to provide a base for continuing research into natural ecological processes;
- to provide a baseline for measuring forest management interventions;
- to investigate the possibility of:
  - buffering the effects of climatic change through old-growth reserves; and,
  - maintaining genetic resiliency of ecosystems if climatic conditions change.

To achieve these objectives, management approaches should consider:

- the specific relationship between old-growth forests and the achievement of defined social objectives, when specific areas are proposed for designation to a particular land-use category;
- the eventual modification of the forest industry's dependence on old-growth forests before all old-growth forests are eliminated, to:
  - allow for conservation; and,
  - buffer the 'fall down' impact on the economies of resource-dependent communities;
- setting targets — at the provincial level and in the context of a land-use strategy — for maintaining a proportion of old-growth forests;
- processing — at the local level — the implications for community impact, allowable annual cut trade-offs and need for compensation;
- integrating the results of wilderness system planning with work on old-growth forests; and
- incorporating the allocation of old-growth forests into a comprehensive land-use strategy.

Ecological reserves and other arrangements

The complex legislative and administrative mechanisms to conserve old-growth forest values needs review and updating.

The ecological reserves program should be immediately and vigorously reactivated with specific emphasis on preserving representative old-growth forest stands.

Old-growth forests in national and provincial parks should be recognized and included along with ecological reserves as part of an integrated conservation plan.

Forest practices

Research should investigate the effectiveness of current and alternative timber harvesting and silvicultural practices, which can preserve some old-growth forest values in commercially managed forests.

This work is needed because of the increasing fragmentation of remaining old-growth stands, relative to the need for wildlife habitat and the maintenance of natural ecosystem processes in the larger landscape.

Forest management

Old-growth forests' conservation and management should be incorporated as a regular and specific feature of management and working plans for commercial forest tenures.

Old-growth forest policy questions

Within the overall policy of achieving sustained yield, it appears that the province's implicit old-growth forest policy is to liquidate it in favour of young forest plantations.

The lack of an explicit recognition of the non-timber values within old-growth forest is resulting in continuing conflicts over specific old-growth stands. These conflicts will become increasingly bitter as old-growth forests disappear.

Legislation, policy, strategy, and early action is needed to give old-growth forest a land-use status as a distinct resource in its own right.

Political support

To build credibility and trust, political support for the development of an old-growth forest strategy must involve the commitment of financial and administrative resources for implementing the strategy.

Proposed action program

The proposed 1990 action program will take the next steps toward creating the formal strategy for dealing with old-growth forests.

Potential criteria for designating candidate areas for old-growth forest reserve status

Candidates for land reserve status to protect old-growth forest values attract controversy. This initial list of criteria should give some structure to debates on specific areas that are advocated for protective designation.

Ecological

- representativeness relative to the province's biogeoclimatic zones;
- stand-size relative to the old-growth forest values for the proposed reserve, especially the need for an unfragmented area to support certain old-growth dependent species;
- potential for the enhancement or reduction of bio-diversity during likely disturbances from natural or man-made events;
- the number of the forest ecosystem types in the proposed area and the relative scarcity of particular ecosystems;
- concentration of unique features, including tree size and extreme age;
- capacity to withstand encroachment from adjacent land uses;
- potential for structural and functional linkages with other reserved old-growth forest stands for reducing fragmentation;

Economic

- impact on the economic stability of companies, communities, and employees dependent on the currently tenured uses;
- potential value for other uses different from its current status;
- compensation costs to discharge commitments to existing tenure holders, affected communities, employee groups, and other historic users of the area;
- the costs and benefits relative to other proposals to preserve similar old-growth forest values; and,
- potential for applied research essential to commercial uses of similar ecosystems.

Social

- public support for the proposal: local, regional, and provincial, and, in some cases, international;
- heritage values represented in the area;
- relationship to native cultural requirements; and,
- accessibility to the proposed alternative users.

which are adequate to conserve old-growth values and meet a package of objectives agreed to in a public discussion process.

Forest Service reports to the legislature should include the status of the critical old-growth forest areas.

Economic impact on tenure holders and communities

The effect of the initial moratoria or longer-term old-growth forest reservations on communities, companies, and employee groups must be considered.

In the long run, companies will have to continue to invent alternative processes and products to reflect the declining stock of old-growth forests. The province will have to assist communities in developing alternative economic strategies based on value-added products and lesser dependence on harvesting old-growth forests.

Land-use strategy

Old-growth forests are a component in a variety of potential land uses. Therefore, they should be managed in the context of an overall provincial, land-use strategy.

Such an overview would make it easier to assess the balance between the costs and benefits to various parties as old-growth forests are depleted or conserved.

Commercial users of the forest should have a designated land base to provide them reasonable security for the duration of their tenure arrangements.

Suggested information requirements

Basic science

The scientific information base on our old-growth forests is extremely limited. Research requirements include:

- more information on basic ecosystem structure, function, and species composition;
- the ecological requirements of old-growth dependent species;
- the disturbance regimes' necessary to maintain old-growth forests and for initiating seral precursors;
- the effects of fragmentation on maintaining bio-diversity which is dependent on old-growth forests;
- the role of old-growth forests in maintaining global environmental conditions; and,
- natural inter-species regulation in the old-growth forest environment.

Applied research

Applied research is needed in the following areas to extend existing knowledge and practices employed by government and industry:

- harvest and silvicultural practices that maintain old-growth forest values and ecological conditions over time on commercial forests;
- old-growth forests management to maintain stable hydrological conditions in watersheds;
- harvest and silvicultural practices that use knowledge of old-growth forest ecosystem processes to:
  - conserve forest soils; and,
  - generate sustainable high-yield production of commercial crops;
- design of old-growth forest reserves to reflect landscape level processes and changes in macro-climate over time;
- occurrence of pharmaceutically valuable biochemicals in old-growth forests;
- structural maintenance requirements in managed forests that would favour maintenance of habitat for old-growth dependent species; and,
- invention of new forest products which use younger wood and reduce industry's dependence on old-growth wood, or increase the unit value of harvested old-growth stock;

Inventory and mapping

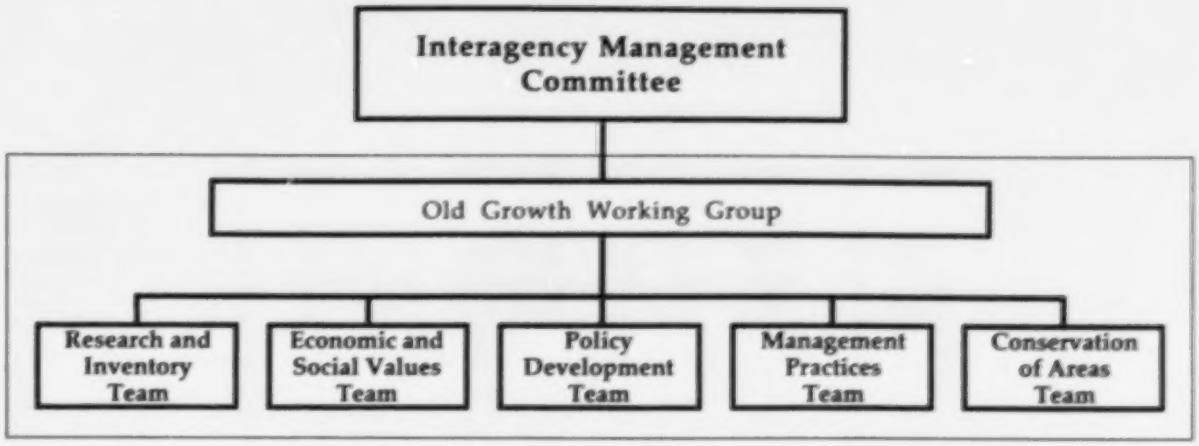
Inventory and mapping of old-growth forests are needed to:

- identify old-growth attributes that can be used to characterize it for purposes of inventory and mapping;
- locate remaining old-growth forest stands by using the identified attributes;
- compare with social and economic land-use objectives and existing tenures; and,
- identify poorly represented old-growth stands and their existing representation in available categories of land reservation, such as parks and ecological reserves.

Social and economic research requirements

Research is needed on social and economic issues to:

- assess economic values and broad socio-economic impacts (current and projected) for various kinds of economic exploitation of old-growth forests;
- determine resilience of old-growth forests to disturbance from primarily non-consumptive uses in recreation and tourism;
- determine old-growth forests' role in maintaining aboriginal cultures;
- determine public perceptions of old-growth forests and their purposes in the landscape;
- determine resource communities' dependence on old-growth forests harvesting or other uses, and the timetable of security related to remaining old-growth contribution to the allowable annual cut before 'fall down'; and,
- determine conflict resolution techniques that can be used to accommodate existing resource users and advocates of alternative uses.



'Old-growth Forests Strategy Project'

The Forest Service, through its chief forester, should initiate a formal 'Old-growth Forests Strategy Project' with the following structure and purposes:

- **Interagency Management Committee**
  - *Composition*
    - Chief Forester, chairman
    - Representatives from ministries having program interests in the project. It is suggested these include: Forests, Parks, Environment; and Regional and Economic Development.
  - *Role*
    - to provide executive management of the project;
    - to ensure availability of human and financial resources;
    - to assist in defining the issues to be addressed;
    - to identify government technical personnel to be involved in working teams; and,
    - to ensure multi-agency co-operation in the implementation of results.
- **Old-Growth Working Group**
  - *Composition:*
    - delegated representatives from 'Interagency' Management Committee;
    - chairpersons of task-specific working teams; and,
    - representatives of government agencies, industry and public interest organizations.
  - *Role:*
    - to integrate the results of the working teams;
    - to maintain adherence to a reasonable timetable;
    - to ensure a responsive communications and public involvement program; and,
    - to decide the framework for progress and final reports of the project.
- **Working teams**

  All working teams should broadly reflect government, industry, independent professionals, academic institutions, native groups, and interest groups relevant to the team assignments.

  Participants should be identified in consultation with organized interest groups, similar to the provincial old-growth workshop.

  Five teams are suggested. They would conduct their assignments concurrently and be integrated at the working group level:
  - **Research and inventory team**
    - to establish a formal research agenda;
    - to develop suitable old-growth inventory processes; and,
    - to establish detailed working steps to achieve the needed comprehensive definitions and data base to serve an old-growth forests strategy.
  - **Economic and social values team**
    - to analyse economic and social values represented in old-growth forests;
    - to initiate studies necessary to evaluate land-use options involving old-growth forests; and,
    - to consider the economic and social impacts of old-growth management and conservation options that would have impact on communities, employees, and future markets.
  - **Policy development team**
    - to review existing legislation, regulations and policies to determine their applicability to the protection and management of old-growth forests; and,
    - to identify gaps in administrative arrangements that need to be filled and develop suggestions for policy makers.
  - **Management practices team**
    - to identify forest management, harvesting, silvicultural and protection practices that could

be employed by government and industry to manage the commercial forest to perpetrate and protect old-growth values;
- to assist in identifying the applied research agenda that would advance forest management capability to use insights from old-growth ecosystem processes in the sustainable management of commercial forests.

- **Conservation of areas team**
  - to establish criteria for identifying and selecting areas for: harvest deferral; transition zones; permanent reservation; and, intensive management for old-growth values;
  - to identify critical areas for immediate deferral; and,
  - to recommend a provincial framework for old-growth reservation.

Immediate preparations

The Forest Service should commission some preparatory work to enable the teams to function effectively:

- **Inventory and research**

  A small technical staff, from the Forest Service and the Ministry of Environment, should immediately test existing definitions of old-growth forests against the current forest inventory system.
  - to provide the research and inventory team with early rough estimates of how much old-growth forests there are, where they are, and how well the forest inventory might meet the immediate needs for establishing boundaries of critical areas; and,
  - to identify current and projected research activity so as to inform the teams promptly when they are established.

- **Economic and social analysis**

  The Forest Service should establish a Forest Service-university group to identify important areas of economic and social analysis that can be commissioned immediately so that it can support and inform the economic and social values team as it begins its work.

- **Deferral process**

  The Chief Forester, in consultation with appropriate other ministries, should appoint a small group of technical staff:
  - to prepare a deferral process, that:
    - can be easily invoked to place critical old-growth forest areas under moratorium;
    - has a reasonable time;
    - can respond to affected parties;
    - can be completed for early use by the conservation of areas team.

- **Revitalizing the ecological reserves program**

  This program could be usefully focussed on preserving old-growth forest values, at least for biodiversity and research. The Forest Service and the Ministry of Parks should immediately activate the eco-reserve process:
  - to assess old-growth forests now in reserves; and,
  - to identify important old-growth areas as new candidates for ecoreserves.

  The results would be integrated into the work of the conservation of areas team when it is established.

Responsive terms of reference and logistic support for working teams

All terms of reference for working teams should be elaborated in consultation with the participants.

The process of inviting participants and refining working objectives will require an initial period of adjustment to ensure that the whole operation reflects a consensus on purpose and process.

To function effectively, the teams will require government technical expert support, financial support for public participants and meeting costs, commissioned research, and professional assistance with facilitation of the overall process.

Suggested timetable

A suggested schedule for the project is:

- commission the project -- February;
- publish the workshop summary -- February;
- finalize working team participants -- March;
- initiate working teams -- March;
- progress report outlining terms of reference, membership, 1990 objectives, and the means to be employed to achieve public involvement -- March;
- progress report on the short-term preparations -- March 30;
- progress report on the early deliberations of the working teams and the conclusions of the preparatory work --June 30;
- major report which delivers the conclusions related to the assigned work of each team -- October 30;
- develop interim conclusions from working teams and set opportunities for public discussion -- December;
- prepare second provincial old-growth forests workshop -- December;
- hold second provincial old-growth forests workshop -- February 1991;
- deliver final report in March 1991 on:
  - the summary of actions taken and objectives achieved from among the detailed assignments given to the working teams;
  - summary of administrative actions taken by the participating ministries to forward the old-growth forests strategy; and,
  - any proposal for continuation of strategy development, or for implementation of team recommendations slated for early action.

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RESOURCE MANAGEMENT

Towards an Old Growth Strategy

Summary of the old growth workshop

Province of
British Columbia

Ministry
of Forests

TOWARDS AN OLD GROWTH STRATEGY

SUMMARY OF THE OLD GROWTH WORKSHOP November 3 - 5, 1989

prepared by

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Integrated Resources Branch, Ministry of Forests, Province of British Columbia

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APPENDIX I

SUGGESTED CHECKLIST OF COMPONENTS FOR AN OLD GROWTH STRATEGY

Much of a forest, and particularly old growth forest, cannot be seen - it is in the soil which has developed with the above-ground parts of the forest over millions of years. Soil is an integral part of the network of life in old growth forests. And it is the soil, in particular, which cannot be regenerated within human lifetimes and the rotation periods of conventional forestry. It is interesting that conventional forest rotation periods are similar to human lifespans - perhaps we cannot really conceive of, and understand, the time required to develop forests.

Most importantly, old growth forests are areas which are full of life; in which 'life' in all its wonderful diversity, is immanent. Old growth forests have a tremendous variety of life forms, layered from the tops of the highest trees to the deepest parts of the living soil. The decay which is an important part of old growth forests provides a great variety of different habitats. It is this aspect of old growth forests - the fact that they are so full of life - that forms the basis of their social, cultural, and environmental importance.

The very survival of Nuu-chah-nulth people, and other native peoples, depends on the survival of old growth forests. Old growth forests are our most important 'places of worship'. We go to old growth forests in order to prepare for important events and times in our lives. Within forests, we are completely surrounded by life; within forests, we can renew our spiritual bonds with all living things. Can we, or any people, survive without a strong spiritual basis to our lives?

By far the most urgent old growth issue is the need to develop, or re-develop, a philosophy of respect for life, and of respect for the incredible network of life, growth, death and decay in an old growth forest. As part of this philosophy, we need to humbly understand our place and our responsibilities within all of creation. Effective protection of the values inherent in old growth forests can only develop out of a renewed spirituality and philosophy based on respect for the living world.

I do not believe that we can, with humble respect for creation, protect the old growth forests in one watershed and eliminate the old growth in the next watershed. Old growth must have its proper place in each watershed. In particular, we must leave untouched very large areas of old growth forests along the sides of streams.

Klah-keest-ke-uss
(Chief Simon Lucas)
Hesquiat Indian Band

1. INTRODUCTION

Concerns for the future of British Columbia's remaining old growth forests are widely shared. They represent values which range from genetic reservoirs essential to planetary survival to standing timber of substantial commercial importance. Heritage significance of forests, wilderness preservation, tourism values, spiritual linkages, atmospheric balance and future viability of the forest industry are examples of issues put forward in which old growth plays a pivotal role. It is urgent that British Columbia formulate a strategy for dealing with its old growth forests while there are still significant options available.

To begin this process, the Ministry of Forests invited a broadly representative group of individuals to a workshop designed to share views and to prepare the groundwork for a provincial Old Growth Strategy.

The workshop took place on November 3-5, 1989 with 80 invited delegates focussing on the required components of an Old Growth Strategy. Delegates worked through a demanding agenda which invited them to summarize their views on:

- Old growth issues
- Definitions of old growth
- Social, economic, environmental, and scientific objectives for old growth
- Research and inventory requirements
- Criteria for selection of old growth reserves
- A blueprint for an Old Growth Strategy

Representatives were selected in consultation with public interest organizations, native bands, the forest industry, academic institutions, independent professionals, federal and provincial resource agencies and the Ministry of Forests. Participants spent a great deal of the time working on consensus statements in small team settings.

This summary combines the many points of view compressed into a single document. It cannot speak for all the variations or for the specific official positions of the individual participants or their organizations. This is especially true for parts of the summary which are cast in the form of action recommendations. Any Ministry of Forests action on this report should include continued consultation with a broadly representative group of parties to ensure that the differing viewpoints are recognized.

2. DEFINITIONS

Definitions of old growth in British Columbia need to reflect a combination of ecological characteristics and social objectives. Workshop participants indicated that movement toward a common language for defining old growth should include:

1. Use of the conceptual bases for definition advanced by the Forest Land Use Liaison Committee and the US Forest Service

2. Biogeoclimatic zone and ecosystem based differentiations of old growth definitions based upon empirical studies

3. Differentiation of operational definitions based upon land management, social and economic objectives advanced by tenure holders, by the public and by resource agencies

4. Use of a less sophisticated definition for a quick overview inventory and a more sophisticated definition for later operational use

> We recognize that old growth forests have economic, social, cultural, and environmental values to the people of the Province. These values need to be identified and the forest resource managed in such a way as to maximize the returns and minimize the conflicts between all of the resource users. At this time discussions about old growth are emotional because of the lack of clear definitions and knowledge of this aspect of the forest resource. At the present time "old growth" is in the eyes of the beholder. Much research and discussion is needed to define what is meant by old growth and to identify and quantify the economic, social, cultural, and environmental values which society in total derives from it.
>
> *Canadian Forest Products Ltd.*

> Old growth is a forest that contains live and dead trees of various sizes, species composition and age class structure that are part of a slowly changing but dynamic ecosystem. Old-growth forests include climax forests, but do not exclude sub-climax or even mid-seral forests. The age and structure of old-growth varies significantly by forest type and from one biogeoclimatic zone to another. For example a coastal old-growth forest could be 200 years old or 1,000 years old; whereas interior old-growth could be 100 years old.
>
> *Interim Statement FLULC,*
> *Consensus Statement on Old-Growth Forests,10/14/89*

3. OBJECTIVES

Land management, social and economic objectives for old growth were advanced which include:

3.1 SOCIAL OBJECTIVES:

- maintenance of contribution to existing community lifestyles
- outdoor recreation
- traditional aboriginal values and culture
- environmental education
- spiritual and aesthetic sanctuary
- maintenance of heritage values

> I don't think we have to lock up old growth completely in this province, but we must freely understand all of the values associated with these magnificent stands prior to complete elimination. For us to regard the treasure of the old growth ecosystem as something to be disposed of, will certainly haunt our children.
>
> *Harold Derickson,*
> *President/Manager*
> *Intertribal Forestry Association of British Columbia*

> From the perspective of the Interior Native Indian Culture old growth forests provide a mix of resources including wildlife, water, cultural, and spiritual. Old growth forests support a mix of herbs and shrubs with important medicinal values in traditional medicine. Many elders report that succession following harvesting of old growth forests does not produce the same type and quality of plants important for medical purposes. The steady liquidation of old growth sites often forces persons interested in collecting medicinal plants to travel large distances from their homes. It is currently unclear whether stands within the normal rotation ages expected for intensively managed forests would produce the number and quality of plants required for medicinal purposes.
>
> Traditional Native culture ascribes strong spiritual elements values to all elements of the forest. Nothing can be taken forom the forests without providing a reciprocal "gift" from the taker. As old growth also provides a wide variety of traditional resources it has relatively high spiritual values.
>
> *Chris Ritchie,*
> *Carrier Sekani Tribal Council, Prince George, B.C..*

3.2 ECONOMIC OBJECTIVES:

- maintain level of economic contribution to government as a continuing lease for sustaining social programs
- realization of stored timber values while maintaining a sustainable harvest of forest products
- consumption of non-timber resources
- support of environmental tourism
- maintenance of community employment and economic stability
- providing a reservoir of employable but as yet undiscovered biochemicals

> The tourism and recreation industry is of increasing value. As a rapidly growing industry it is an important factor in B.C.'s economy. Old-growth forests are an essential element of this industry for both their scenic and wilderness values. Income generated by tourists, hunters, trappers, and outdoor recreationists enjoying and utilizing old-growth forests contributes a substantial amount of revenue to government and industry. Adventure tourism and wildlife viewing are two of B.C.'s fastest growing industries, both of which require old-growth forests to attract their customers from throughout the world.
>
> *Bob Peart, Executive Director*
> *Outdoor Recreation Council of B.C.*

3.3 ENVIRONMENTAL OBJECTIVES:

- maintenance of biodiversity and genetic information both for B.C. and as part of the global responsibility
- contribution to the management of hydrologic systems, especially in community watersheds
- contribution to the management of the global carbon reservoir

> The old growth "issue" is a subset of the biological diversity issue. As a greater proportion of our landscapes are modified by forestry practices (or other human activities) , we need to consider much more carefully than we have the impact of forest management on all the components of biological diversity. I consider the components of biological diversity to be: genetic, species, structural, spatial, and community or ecosystem. Franklin (1988) addresses some of these issues.
>
> *Dr. Ken Lertzman,*
> *Simon Fraser University*

Biodiversity is an umbrella term for the degree of nature's variety, including the number and frequency of ecosystems, of species, and of genes in a given assemblage (McNeely 1988). It is usually considered at three different levels: genetic diversity, species diversity, and ecosystem diversity. Genetic diversity is a concept of variability within a taxonomic unit (i.e. species, subspecies) as measured by the variation in genes. Species diversity is a concept of the variety of living organisms in a given area. It includes both the number of species and their population sizes. Ecosystem diversity relates to the diversity and health of ecological complexes in which species occur. Ecosystems provide natural cycles of nutrients, of water, of oxygen and carbon dioxide, and of other chemicals.

A successful conservation strategy for maintaining biodiversity requires preservation. Preservation needs to be applied at all three levels of biological diversity. Genetic diversity needs to be maintained to ensure that no species goes extinct through humans' neglect. Species diversity requires preservation and managemant of lands in ways that all species in an area have the opportunity to persist. Ecosystem diversity means that enough examples of the world's ecosystem are preserved. Efforts to conserve species must conserve ecosystems of which they are a part (McNeely 1988; Magurran 1988). Biological diversity is crucial to conserving renewable natural resources. This is reflected in two of the core principles of the World Conservation Strategy: preservation of genetic diversity and sustainable utilization of species and ecosystems. It is vital to the sustainable productivity of species we currently value as resources and to the long-term health of ecological systems that must provide resources for future generations. Concern for biodiversity is fundamental to a land ethic, and to caring for the land (Salwasser 1989; Brundtland 1987).

A Discussion Paper On Old-Growth Forests;
Prepared by the Ministry Of Environment, Victoria, B.C.

3.4 SCIENTIFIC OBJECTIVES:

- providing a base for continuing research into natural ecological processes
- providing a baseline against which forest management interventions can be measured
- replication of representative ecosystems to buffer the information base from climatic change and to react to other dynamic processes
- investigating the possibility of buffering the effects of climatic change through old growth reserves and of maintaining genetic resiliency of ecosystems in case of climatic change

> Coastal old growth forests are ecosystems hundreds of years in the making, and remaining largely unaffected by man. They are characterized by large, old trees in the overstory with interspersed openings, and by younger trees below; they generally contain equally large snagsand fallen trees; understory vegetation is relatively sparse. Old growth forests provide habitat for a large number of plant and animal species peculiar to these ecosystems. Each area represents a unique resource of locally-evolved, adapted populations and hence is an essential store of biotic diversity. Scientifically, they are invaluable examples of nature achievements in sustainability. Beyond their boundaries, old growth forests may ameliorate regional climate, and they have profound implications for global climate as they are world's greatest terrestrial carbon sinks.
>
> *Dr. John Drew, Forestry Canada*

Management approaches to achieve these objectives should take into consideration the following conditions:

a) The specific relationship between old growth and the achievement of defined social and economic objectives should be made clear when specific areas are proposed for designation to a particular category of land use

b) The forest industry dependence on old growth must eventually be modified before all old growth is eliminated, both to allow for conservation and to buffer the "fall down" impact on the economy of resource communities

c) Targets for maintenance of a proportion of old growth to meet specific objectives should be set by the province in the context of a land use strategy but the implications for community impact, AAC trade-offs and need for compensation should be processed at the local level. Brundtland and the Valhalla Wilderness Society have advanced land reservation percentages while industry would like to see specific percentage allocations to "working forest"

d) Results of the Wilderness study, previously completed, should be integrated with any further work on old growth

e) Allocation of old growth should be incorporated into a comprehensive land use strategy, long overdue for the province as a whole, and a necessary precursor to discussions of management

This is the issue which has created the greatest controversy and as a part of the search for justification for preservation of large areas of old growth, the previous three issues have been drawn into the conflict. The demand for wilderness should not be confused with the previous three needs and areas which are set aside for wilderness should be those which have the greatest ability for meeting the criteria for providing a wilderness experience.

The current tendency of some groups to propose some areas for preservation simply because they are not yet developed confounds the issue and is leading to single use designations of portions of our land base which are not the best in terms of meeting wilderness criteria alone.

In terms of rating the urgency of these four components of the old growth issue, the number one urgency is to provide an intelligent mechanism for determining which areas are best suited to providing a high value wilderness experience. To answer repeated calls for simply doubling the park system to 12% of the area of B.C., a concrete inventory of both existing and defacto wilderness areas should be undertaken without delay. Those areas offering significant wilderness values should be considered for wilderness designation within the context of the need for wilderness and the balance should be managed for multiple use.

Don McMullen,
Fletcher Challenge, Vancouver,B.C.

Of utmost importance to the Canadian Parks and Wilderness Society is the need for the protection of values that are more closely associated with wilderness. Wilderness and old growth have some values in common and some that are distinctive to each. Wilderness includes social, cultural and economic values not necessarily included in definition of old growth based on ecological or habitat requirement, considerations. Wilderness encompasses a broader range of ecosystems than can be described by "old growth". The values that are associated with wilderness would be more appropriately addressed by a Ministry of Forests wilderness policy.

CPAWS encourages the Ministry of forests to develop strategies pertaining to those ecological values that are best addressed under the term "old growth", but cautions the Ministry to not confuse old growth values with wilderness values. Old growth and wilderness need to be addressed in harmony, but separately.

Rick Searle,
Canadian Parks and Wilderness Society

The maintenance of old growth forest ecosystems seems essential to:

1. Avoid the possible extinction of some of the species adapted to these ecosystems.
2. Maintain or maximize biotic diversity at all scales (international, national, provincial, regional, and local).
3. Provide a source for the recolonization of exploited forests by the species adapted to old growth ecosystems. This is especially important for species with low dispersal capabilites.
4. Dampen the effect of impending climate change. Old growth ecosystems should be more resilient to such change than younger forest and should provide more time for species to adapt.
5. Maintain the maximum number of options open in terms of sustainable development of the forested ecosystems not only for timber but also from a wildlife perspective. Old growth ecosystems have high intrinsic social, cultural and economic potential that we have barely tapped yet.

Dr. Jean Pierre L. Savard,
Canadian Wildlife Service

4. PRIORITY OLD GROWTH ISSUES

Old Growth issues identified by workshop participants include:

4.1 THE INFORMATION BASE

An effective inventory of old growth needs to be developed which reflects the ecologically based and the socioeconomically based elements of old growth definitions. It must be capable of providing information about the old growth stands that are currently identified by public groups and by resource agencies as targets of urgent priority.

Research which will generate comprehensive information about the structure, composition and functioning of old growth ecosystems needs to be supported. The needs of old growth dependent species and the sizes of areas to be preserved from fragmentation need urgent attention.

Existing forest and other resource inventories need to be challenged to provide as much immediate information as possible about old growth, based upon the preliminary definitions and our current understanding of old growth management objectives.

> The notion that old growth stands are decadent is largely a myth (more or less depending on the system and how you define decadent). Old growth stands are characterized by the mortality of canopy trees, but this loss of volume is probably made up by the growth of their neighbours and the young trees replacing them (eg. DeBell and Franklin 1987; Lertzman 1989; Long 1976; Newton and Cole 1987). While Net Primary Poductivity (NPP) peaks early in stand development, total biomass and Gross Production peak much later, if at all. At worst many old growth stands probably approach a steady state of zero NPP, and zero change in wood volume (DeBell and Franklin 1988); Grier and Logan 1977; Franklin at al. 1981; Spies and Franklin 1988). These ideas challenge our common wisdom about old growth, and we need more data to assess them. The data referred to are almost all for Douglas-fir in Oregon and Washington. We have no long-term records of growth and mortality in B.C., and little data on the production budgets of old growth in other areas and other forest types. This makes it difficult to assess the validity of our preconceptions.
>
> *Dr. Ken Lertzman,*
> *Simon Fraser University*

There will be difficulties in compiling such an inventory, because a considerable amount of old growth forest almost certainly lie in areas controlled by industrial licensees, who may show a reluctance to divulge the information needed. This reluctance to help compile an inventory of remaining old growth stands will create further delay and lead to more lost opportunities. Consequently, the strategy for old growth must deal with the issue of the time required for development and implementation. Clearly identified time limits must be established and adhered to if the strategy is to work. For this reason, it may be wise to consider some form of moratorium on known old growth sites of outstanding value, which would remain in effect for say five years. During that time, a comprehensive inventory would be made of provincial old growth areas. This would include those areas already found in Class A parks and ecological reserves or similar areas in which no logging or other extractive uses are allowed. Each site that is to be considered for set aside, would be assessed for its biological characteristics, its extent, its location and the potential loss of standing timber, in addition to the potential loss of future timber from that site. This means that the inventory should also include an assessment of site class, topography, logging and regeneration potential, and where possible, an evaluation of the effects on the provincial AAC.

Julian A. Dunster,
Simon Fraser University, Burnaby, B.C..

4.2 PUBLIC INVOLVEMENT

An effective, broadly inclusive system of public involvement needs to be established which can be employed with trust and confidence by all parties who have an interest in old growth. The system must incorporate opportunities to participate in the early stages of land use planning and ongoing resource management planning, to identify areas of urgent concern, to gain access to information, to reach for consensus on land use objectives and to provide for conflict resolution among competing interests. The resolution process should include a range of mechanisms extending from the local and informal to the provincial and legally structured.

The process of public involvement should include recognition of the need to fund public participants so that they have effective access to the decision making process.

There is no visible due process to involve communities and concerned citizens in strategy level decisions about forest harvesting. The Ministry of Forests is trying to obtain better public input and understanding at the operational planning level. But the overview process within which operational planning fits is poorly developed and poorly articulated. There must be a definite place in strategic plans for old growth consideration. This leads all to often to direct confrontation even though such drastic action has usually been preceeded by ineffective discussion.

We have participated in some of these situations and unless a better method is adopted and supported by the Government no doubt we will continue to be involved. But our preference is for ways and means that allow concerned citizens and non-government organizations access to pertinent information that can be used to participate in the early planning on how much old growth to retain and where.

Areas selected must be large enough to meet the objectives stated for that site. Thus areas will vary in size based on their needs as a gene pool, economic and recreational uses and other forestry, species diversity, hydrological cycle, energy and nutrient cycling, wildlife habitat for dependent species such as winter range for ungulates and year round habitat for salamanders and fungi, response to edaphic conditions etc. The size and siting for the area should conform to the stated objective.

The current confrontations about preservation of old growth forests are due in a large measure to the recognition by new elements of the public of equally new biological and economic values on the one side and the lack of Government process to accommodate these new values within the current system of forest management, on the other. The B.C.W.F. recommends that the Forest Ministry review the need for retaining old growth through a public process open to all concerned people, N.G.O's and communities with the intent of looking critically at these new values and their benefits.

Don Robinson,
B.C. Wildlife Federation

4.3 CONSERVATION OF OPTIONS

Government should move immediately to identify critical areas of old growth and place them under moratorium while the overall picture of old growth needs can be properly assessed in the context of a land use strategy. These moratoria should be of limited duration (for example, 2 years).

This short term action to place an initial group of old growth stands under moratorium should be followed by a process of identification of provincially representative stands which are adequate to conserve old growth values and sufficient to meet a balanced package of objectives reached by consensus in a process of public discussion.

Reports on the status of critical old growth areas should be included in Ministry of Forest reports to the legislature.

> In the interim, we propose a partial moratorium on old growth logging. Such a moratorium should cover a network of representative old growth forest areas which are likely to provide the conservative minimum old growth forest area necessary for a healthy forest landscape ecology. This network of forests is precisely what we plan to identify.
>
> We do not claim to be identifying "old growth forests" based on set criteria and definitions. We are seeking to define and map the network of candidate old growth forests. A temporary moratorium provides the time necessary to evaluate the situation, and to attempt to reach a societal consensus on what should be done. Such a moratorium on old growth timber extraction will serve as a catalyst for resolution of old growth issues.
>
> A reasonable moratorium on old growth timber extraction will serve as a catalyst for resolution of old growth issues. If the various sides involved are sincere in their desire to solve old growth issues, a moratorium will insert efficiency into the process, and balance the power between timber and non-timber forest users.
>
> *Herb Hammond, Silva Ecosystem Consultants Ltd.*
> *Winlaw, B.C.*

> There was general agreement that government should move quickly to identify **critical** areas of old growth. However, these areas **should not** be placed under moratorium "while the overall picture of old growth needs are properly assessed." The application of moratoria would be very disruptive to the forest industry, its employees and associated communities as well as the Provincial economy. The absence of a moratorium would in fact lend some urgency to the completion of the comprehensive assessment required to justify the reservation of a particular area of old growth.
>
> *B. E. Rickson, R.P.F.*
> *Chief Forester, Canadian Foest Products Ltd*

Industry is already faced with moratoria. It is essential that all moratoria have a time-limit affixed; only in this way can industry plan realistically. It has already been pointed out by the preservationists what the perils of delay to sustained level harvesting are. Industry cannot operate efficiently with even more uncertainty than already exists. We suggest that no moratorium exist for longer than two years. In terms of upset to plans and sustained yield, the larger the area the shorter the moratorium period should be.

David L. Handley, RPF
Manager, Resource Analysis Section,
MacMillan Bloedel Ltd

4.4 ECONOMIC IMPACT ON TENURE HOLDERS AND COMMUNITIES

Immediate consideration must be given to communities, companies, and to groups of employees who may be affected by the initial moratoria or longer term old growth reservations. In the long run, companies will have to continue to invent alternative processes and products to reflect the declining stock of old growth and the province will have to assist communities to develop alternative economic strategies based on value-added products and lesser dependence on harvest of old growth.

The current Provincial AAC is supported by a productive forest land base which includes old growth forests. The land base has been committed to supporting the existing manufacturing infrastructure and the jobs which go with it. Any reduction in the size of the productive forest land base or the volume of old growth forest allocated in support of the Provincial AAC will result in a reduction in the allowable Provincial harvest level, which will cause increased unemployment, reduced government revenues, and reduced social benefits. We urge care and caution in any proposal to reduce the size of the productive forest land base or to change the rate at which old growth stands are being harvested.

Canadian Forest Products Ltd.

Old-growth plays a crucial role in the maintenance of the British Columbia forest economy. There is no doubt that the province cannot abandon the harvest of old-growth for the foreseeable future. About ninety percent of our present harvest is provided by naturally occurring mature and older forest. Determining what percentage of this is old-growth awaits both an accepted definition and an inventory of old-growth, but the proportion is undoubtly substantial.

Harvest guide-lines will have to be established as part of an old-growth strategy and include landscape and stand-level designs. However, it should be acknowledged at the outset that scheduling harvest of old-growth to maintain old-growth values throughout the province may require changes that will impact on annual harvest levels. Elements of a harvest strategy, driven by

concerns for the maintenance of old-growth, that will effect cut levels include longer rotation ages, partial cutting, green tree retention and preservation of stands that currently contribute to the cut.

An old-growth strategy should not be developed in isolation from the economic needs of the province, especially as they relate to forest sector dependent communities. Reduction in harvest levels and changes to harvest regimes must be balanced with the needs of people and their communities.

Old-Growth Background Paper,November,1989;
Association of B.C. Professional Foresters

4.5 LAND USE STRATEGY

Old growth is a component in a variety of potential land uses and therefore should be managed in the context of an overall provincial land use strategy. Without this overview it will be difficult to balance the costs and benefits that fall to various parties as old growth is depleted or conserved. It is also necessary to give commercial users of the forest a designated land base that has enough popular consensus to provide reasonable security for the duration of tenure arrangements.

As a forester trained to manage forests, I know that the technology exists to manage them for whatever our sociey decides. The key is, whatever our choice, management will be needed. This management will include people management, protection from fire, disease and pests and, depending on need, the judicious use of the axe and saw.

Therefore, old growth issues should be put within the context of an overall land use strategy for forest land that achieves support for an appropriate balance of all uses: timber production, recreation, tourism, environmental protection, wildlife habitat, etc..

Bruce Devitt,
Canadian Pacific Forest Products, Vancouver, B.C..

The key old-growth forest issues are:

1. Establishment of a land-use policy for B.C. that includes recognition of old-growth forest protection
2. How to have ecologically viable tracts of old-growth representing all major ecotypes set aside with replication for reasonable geographic distribution - before they are compromised or broken up by Annual Allowable Cut imperatives
3. Reduction of A.A.C.'s and restructuring of B.C.'s forest industry to open up non-consumptive and/or sustainable options for forest land stewardship, including the protection of old growth forests.

Mark Waring,
Western Canada Wilderness Committee

"Old growth" as a discussion topic is being confused with, and used as justification for, wilderness, ancient or primeval forest, and parks or tourist destination preserves. All of these are land use issues, not determined by old growth per se, although old growth may be included.

The first step in addressing "old growth" is to clearly segregate it from the land use allocation issues that will result. The land use strategy required to achieve responsible and equitable allocation of land use to those uses which provide optimum social and economic benefit to the people of British Columbia must include old growth as only one of the components.

R.W. Beaumont, Weldwood of Canada Ltd.

4.6 ECOLOGICAL RESERVES AND OTHER ARRANGEMENTS

The complex of legislation and administrative mechanisms which can be employed to conserve old growth values should be reviewed along with the effectiveness of their administration.. The Ecological Reserves program, widely perceived to have bogged down, should be immediately and vigorously reactivated with specific emphasis on preserving representative stands of old growth forest. Old growth represented in national and provincial parks should be recognized and included alongside ecoreserves in an integrated conservation plan.

Preservation of forested ecosystems representative of the major forest stand types is essential for ensuring that we have bench-marks for the purpose of evaluating over time our progress in managing the forest. By definition, these areas would be protected against human impact. Reserves can be either old growth timber areas or second growth established after natural events. They may lie within the existing Park system or be special reservations extracted from the provincial forest land base.

While a good start has been made on this program, there is an urgency to complete it because opportunities are diminishing and the issue of scientific need is being manipulated to justify reservation of large areas of old growth for other purposes.

Don McMullen
Fletcher Challenge Canada

4.7 FOREST PRACTICES

Research and experimentation should be commissioned to investigate the effectiveness of current and alternative forest harvest and silvicultural practices which are capable of preserving some old growth values in commercially managed forests. This is especially necessary given the increasing fragmentation of remaining old growth stands in relation to the needs for wildlife habitat and the need for maintenance of natural ecosystem processes in the larger landscape.

Old growth preserves are necessary, but most forested land will be impacted to a greater or lesser extent by forestry practices. Much old growth will persist in areas where the primary concern is timber production. This makes it critical that we concern ourselves with the viability of such residual old growth fragments. Brown (1988) introduced the idea of the "semi-natural matrix", where more managed elements and more natural elements coexist within the same landscape. As de facto managers of biological diversity, we need to be concerned with both kinds of elements.

Dr. Ken Lertzman,
Simon Fraser University

If the present system of conventional forest management continues in its current binary mode - clearcut or preserve - the necessary area of protected old growth increases. If movement is made towards ecologically responsible forest management, the necessary protected area decreases. While true old growth is not something which people can create, except by leaving an intact forest ecosystem alone, certain of the important structural, functional, and compositional attributes of old growth can be included in our managed forests. Forest practices can be altered to retain or create large trees, snags, and fallen trees in our managed stands. Ecologically responsible forestry can reduce some of the pressure for full protection by presenting a whole range of options between the two extremes of preservation and exploitation.

Herb Hammond, Silva Ecosystem Consultants Ltd.
Winlaw, B.C.

4.8 FOREST MANAGEMENT

Management and conservation of Old Growth should be incorporated as a regular and specific feature of Management and Working Plans for the commercial forest tenures.

Adopting an accepted definition for old-growth will begin the process of developing an old-growth strategy for British Columbia, but much more will have to be done. Within the provincial forest about 27 million hectares or 58% of the area has been classified as presently composed of mature (121+ years) forest. Determining what portion constitutes old-growth can be based to a large extent on the MoF ecological classification data although additional research may be required. The following points will have to be considered in formulating the strategy:

- catalogue and refine a comprehensive list of social,aesthetic and economic values of old-growth
- research old-growth management to develop preservation and utilization guide-lines
- develop harvest and silviculture methods to preserve old-growth values within the broader context of managed landscapes
- inventory of old-growth forests across the province, including stands within provincial and national parks, federal lands, and on private land.
- maintain on-going research into the ecological values and functioning of old-growth ecosystems and their conservation within the commodity landscape
- undertake research to integrate old-growth conservation and development objectives within management plans
- develop management guide-lines for identifying and evaluating stand specific old-growth values within the landscape as a whole.

Any strategy for old-growth in B.C. will require that careful consideration be given to a wide variety of values. In some cases preservation of old-growth stands will be required, but in other scenarios coexistence of values, such as recreation and wildlife with harvest, will have to be met. Whether a decision is made for complete preservation or for utilization of an old-growth stand, the decision must be based on clear management policy.

Old-Growth Background Paper, November,1989:
Association of B.C. Professional Foresters

4.9 OLD GROWTH POLICY

Within the overall forest policy of achieving sustained yield, the implicit policy of the province with respect to old growth appears to be to liquidate it in favour of young forest plantations. The lack of an explicit recognition of the many non-timber values of old growth is leading to a continuing round of conflicts over specific old growth stands. These conflicts will become increasingly bitter as old growth disappears. The province needs legislation, policy, strategy and early action to give old growth a land use status as a distinct resource in its own right.

> We believe that a two pronged approach is necessary to achieve a rational growth policy.
> First, large, intact old growth ecosystems must be fully protected from consumptive human use. These forests should be:
>
> - large enough to function on their own
> - large enough to (hopefully) buffer and withstand the coming assaults from climate change, global pollution and ozone depletion
>
> These forests are our insurance policy. Such ecological reserves are needed to provide the gene pool, the species reserve, and the working examples we need if we are to sustain our commercial forests. As Aldo Leopold said, "The first rule of intelligent tinkering to save all the parts". We are busy tinkering with our own ecosystem. If we want to survive our own experiments, we better be sure we save the parts. The Carmanah watershed, the Stein Valley, Clayoquot Sound, the Cariboo-Chilcotin area, and the Khutzeymateen Valley are excellent examples of the sort of reserves which are necessary in every biogeoclimatic region. Many smaller areas also have important landscape functions and are worthy of protection. Small protected areas are not substitutes for large protected areas of old growth. However, small representative "nodes" of old growth must be protected in a viable pattern throughout the forest landscape.
>
> *Herb Hammond, Silva Ecosystem Consultants Ltd.*
> *Winlaw, B.C.*

4.10 POLITICAL SUPPORT

Political support for the development of an old growth strategy must lead directly to financial and administrative resources being committed to the implementation of the strategy in order to build credibility and trust.

5. SUGGESTED INFORMATION REQUIREMENTS

5.1 BASIC SCIENCE

The base of scientific information about old growth in British Columbia is extremely limited. Some of the most obvious research requirements are:

- Continued accumulation of knowledge on basic ecosystem structure, function and species composition
- Ecological requirements of old growth dependent species
- The role of disturbance regimes in the maintenance of old growth and the initiation of its seral precursors
- The effects of fragmentation on the maintenance of old growth dependent biodiversity : minimum critical areas for ecosystems and species
- The role of old growth and younger forests in the maintenance of global environmental conditions
- Natural interspecies regulation in the old growth environment

> While we may choose to adopt the Management Indicator Species approach used in the U.S. (Patton 1987), we need to be clear that our goal is to manage whole ecosystems, not individual species, guilds, or stands of trees (Franklin and Spies 1989; Thomas et al. 1988). Though they may be an important component of our rationale for preservation, we connot address our management solely to individual trees, spotted owls, or marbled murrelets with much hope of success. To learn the most from our management actions, to reap the greatest benefits from what we do reserve, and to increase the chances for successful management for old growth values, we need to assess the consequences of our actions on as many ecosystem components as possible.
>
> *Dr. Ken Lertzman,*
> *Simon Fraser University*

> Old Growth protection must err on the side of caution to not eliminate habitats and biotypes that may be needed for other species whose identities, life histories, and functions are not yet or incompletely known at present. We have some recent knowledge about old growth-dependent mammals, birds, and amphibians (mostly from the U.S. by extrapolation !) We know much less about insects, and less still about microbiota, (e.g. soil mites) or fungi. Mycorrhizal relationships of fungi with trees, and even their silvicultural, economic utility are poorly known, not to speak of their identities, species numbers, and distributions. With the elimination of old growth forest types we run the risk of losing life forms before we know them.
>
> *H. Roemer*
> *Ministry of Parks*

> Clearly, serious difficulties arise in trying to sustain all the benefits Canadians have come to enjoy and expect from old growth forests. The resolution of these difficulties must be based on processes in which an informed public participates. But a prerequisite to these processes is the availability of the best possible information on the status of old growth forests, and on the manner by which their vital functions contribute to our society. In the absence of this information, public anxiety about old growth depletion will continue to exert perhaps inappropriate constraints on options open to forest managers.
>
> *Dr. John Drew,*
> *Forestry Canada*

5.2 APPLIED RESEARCH

Applied research is required in the following areas to extend existing knowledge and practices employed by government and industry:

- Harvest and silvicultural practices that maintain old growth values and ecological conditions over time on the commercially managed landscape

- Management of old growth to contribute to stable hydrological conditions in watersheds

- Harvest and silvicultural practices that use knowledge of old growth ecosystem processes to conserve forest soils and to generate sustainable high yield production of commercial crops

- Design of old growth reserves and reserve programs to reflect landscape level processes and buffer changes of macroclimate over time

- Occurrence of pharmaceutically valuable biochemicals in the old growth forest

- Structural maintenance requirements in managed forests that would favour maintenance of habitat for old growth dependent species

- Invention of new forest products employing younger wood that reduces dependence of industry on old growth wood or increases the unit value of old growth stock that is harvested

> Large Scale Experiments and Long-Term Data Sets: A recurrent theme in this discussion has been the lack of long-term data on dynamics; of individual trees, of stands, and of associated communities. I would add to this the need for experimental approaches. The amount of data required is mounumental, and the weaknesses of descriptive survey approaches have become clear over the last decade. Every time a stand of old growth is harvested we are conducting an experiment that could be used to address some of the issues raised above. By analyzing the consequences of current practices and conducting experiments in alternatives, we will arrive at operational guidelines much faster than if we relied on descriptive data alone. We are conducting the experiments already, but we are not planning them, establishing controls, or analyzing them. Taking advantage of this opportunity will require a great degree of cooperation between industry, the forest Service and university scientists.
>
> *Dr. Ken Lertzman,*
> *Simon Fraser University*

5.3 INVENTORY AND MAPPING OF OLD GROWTH:

- Identification of old growth attributes that can be used to characterize it for purposes of inventory and mapping
- Location of remaining stands of old growth employing the identified attributes
- Comparison with social and economic land use objectives and existing tenures
- Identification of poorly represented old growth stands and their existing representation in available categories of land reservation, such as Parks and Ecological Reserves

> Timber supply analyses are most sensitive to two issues: land withdrawals and old growth or first growth inventories. These combined have major impact on harvest rates that no amount of silviculture can overcome. Major withdrawals will exacerbate fall-down difficulties.
>
> *Bruce Devitt, Canadian Pacific Forest Products Ltd*
> *Tahsis Pacific Region*

5.4 SOCIAL AND ECONOMIC RESEARCH REQUIREMENTS:

- Assessment of economic values and broad socio-economic impacts (current and projected) for various kinds of economic exploitation of old growth
- Resilience of old growth to disturbance from primarily non-consumptive uses in recreation and tourism
- Role of old growth in the maintenance of aboriginal cultures
- Public perceptions of old growth and the purposes which it should play in the landscape

- Dependence of resource communities on old growth harvesting or other uses and the timetable of security related to remaining old growth contribution to the AAC before "fall down"

- Conflict resolution techniques that can be employed in the accommodation among existing resource users and advocates of alternative uses

> It is now important to re-evaluate B.C.'s forest industry dependence on old-growth forest. If government is to continue to use forests as a major source of revenue - as a sustainable resource - then allowable annual cuts (AAC's) must be reduced. In a truly integrated-use forest environment, values represented by watershed protection, wildlife habitat, tourism, recreation, and environmental protection must have status to be correctly evaluated in the economic context. If old-growth is only viewed for its fibre conversion return in dollars, the potential for other economic benefits from, for example, tourism or medicinal products will continue to be ignored. The resource liquidation will continue.
>
> One of the most urgent old-growth issues is to decide on a set of criteria to be used in evaluation of B.C.'s remaining old-growth forests for their correct designation as wilderness forest, park, ecoreserve, forest reserve or industrial forest. The application of the system is most urgent on the coast. Certain ecosystems in the province's interior may dictate equally urgent action.
>
> *Kerry R. Joy,*
> *Ministry of Parks*

> We are dealing with some of the economically, biologically, and aesthetically most valuable ecosystems in the province. Prime, old growth trees, with their clear, straight, fine grain, are the cream of the forest the likes of which we are unlikely to see again once they are gone. Dr. Peter Pearce believes there may be only about 14 years left logging the old growth on the coast. Then the 'fall down' effect will throw many out of work. Rather than a 'fall down' we should have a 'slide down' in which we cut back on logging old growth now so that it will last longer into the future.
>
> *Bristol Foster*
> *Saltspring Island, B.C.*

Crown timber resources of B.C. are a public commodity which have been allocated to the forest industry, as responsible custodians, through license agreements (e.g. Tree Farm licenses, Timber licenses, etc). In most instances, such land tenure licenses are allocated to private industry at minimum cost compared to actual timber value. The removal of old growth forests from lands allocated under these various licensing agreements have both short and long-term economic implications for both the forest industry and the people who depend upon this industry for sources of income. Based upon these factors, strategies for the development of 'realistic' compensation packages for areas removed from license holder's annual allowable cut for long-term preservation is critical.

Gregory D. Fenton, Regional Forestry Officer,
Canadian Parks Service, Western Region Alberta,
Alberta, Canada

6. POTENTIAL CRITERIA FOR DESIGNATION OF CANDIDATE AREAS FOR OLD GROWTH RESERVE STATUS

Candidates for land reserve status to protect old growth values attract controversy. This initial list of criteria is intended to give some structure to the debates about specific areas that are advocated for protective designation.

> From a protection standpoint, it is critical that representative areas, including those containing old growth, be identified for management under extremely long rotations and for indefinite protection from commercial extractive activities (i.e. mining and logging)
>
> While 6.5 % of British Columbia has some degree of protection status, only about 2.4 % (19, 928 km2) of the Province has been reserved with the legislative authority to preclude resource extraction activities such as mining, hunting, and logging. Even a smaller proportion of this protected area contains coastal and interior "old growth". The small proportion of old growth that is protected is contained in national parks, provincial parks (Class 'A'), and a number of ecological reserves. This amount of protected area in British Columbia falls far short of the 10 % target value at the World Parks Congress (1982) or the more recent value of 12 % recommended by the World Commission on Environment and Development (1988). The proportion of protected area in B.C. also falls short of that in its neighbouring provinces, states, and territories. For example, Washington State has already protected 11.3 % of its landbase, Alberta 8.2 %, and Alaska 39.7%.
>
> *Gregory D. Fenton, Regional Forestry Officer,*
> *Canadian Parks Service,*
> *Western Region, Alberta*

6.1 ECOLOGICAL CRITERIA

- Representativeness in relation to the provincial system of biogeoclimatic zones

- Stand size in relation to the old growth values for which the reserve is proposed, especially with respect to the need for unfragmented area to support certain old growth dependent species

- Potential for the enhancement or reduction of biodiversity during likely disturbances from natural or man-made events

- The number of the forest ecosystem types contained in the proposed area and the relative scarcity of particular ecosystems

- Concentration of unique features including tree sizes and extreme age

- Capacity to withstand encroachment from adjacent land uses

- Potential for structural and functional linkages with other reserved old growth stands for the reduction of fragmentation

> .....It is proposed that particular types of old-growth forests are specified, according to some form of systematic and ecological breakdown of the variety of provincial forest types. Most classification efforts have required categorizing a stand either as old-growth or not old-growth (Raphael et al. 1989). This has led to tremendous controversy over how much old-growth currently exists. Stand attributes vary over a continuum. It may be more realistic, especially from a wildlife viewpoint, to recognize that particular stands possess old-growth attributes to varying degrees. This will allow more flexibilty in identifying and managing old-growth.....
>
> Wildlife species may have varying dependence on either old-growth forests or at least structural components generally associated with older forests. Dependence suggests that old-growth is necessary in order for some life requisites of these species to be successfully met. Without the old-growth, maintenance of viable population numbers will be impossible. Species presence alone is not enough to indicate population variability. They must be able to persist and be resilient to changing conditions over time. Many species are strongly associated with old-growth attributes. These may not be totally dependent, but will reach their maximum abundance (and possibly genetic health) in these habitats.....
>
> *A Discussion Paper On Old-Growth Forests;*
> *Ministry Of Environment, Victoria, B.C.*

Reservation of specific areas of old growth or older second growth for the purpose of providing essential habitat for fish and wildlife populations is recognized as a legitimate reason for reserving certain stands. As research provides more answers and as special management projects are able to duplicate the desired traits of these reserved stands in second growth stands, these reserves can be released in favour of the replacement areas.

It is important that all parties agree that reservation of such old growth stands is for the purpose of essential habitat maintenance and that when substitute conditions are provided by nearby second growth stands, that the reserves will be shifted to these new areas.

Don McMullen,
Fletcher Challenge, Vancouver, B.C.

The size of old-growth patches depends on the purpose for which the ecosystem was set aside. There are known relationships between the requirements of a species and the area of land needed to maintain it. If the set-aside was to maintain minimum viable populations of certain wildlife species, the area would have to encompass sufficient species populations to allow for genetic variation and exchange within the block to ensure long-term species survival. Habitat fragmentation and isolation of subpopulations, with no possibilty of genetic exchange, is thought to be the first step towards local extinction of species. Habitat fragmentation leading to the decline in Caribou populations of our southern British Columbia mountains is probably the best example where this has occurred.

A Discussion Paper On Old-Growth Forests;
Ministry Of Environment, Victoria, B.C.

6.2 ECONOMIC CRITERIA

- Impact of reservation on the economic stability of the province, companies, communities and employees dependent on the currently tenured uses

- Potential value of the reserved forest for other uses different from its current status

- Cost of compensation required to discharge commitments to existing tenure holders, to affected communities, to groups of employees, and to other historic users of the area to be reserved

- The relative cost/benefit of the proposed reserve in relation to others proposed to preserve similar old growth values

- Potential for applied research essential to commercial uses of similar ecosystems

> The time is now to establish a process to set aside representative forest types and exclude them from A.A.C. We have mentioned some biological reasons for so doing but there are also substantial economic reasons. Extensive old growth forests are rapidly becoming an economic asset in their own right. This value will increase as more people with serious environmental concerns (and the number is increasing rapidly) seek assurance about a variety of factors about the environment to which old growth forest is key.
>
> *Don Robinson,*
> *B.C. Wildlife Federation*

> The biggest fear of Share Our Resources is that large areas of old growth forests in B.C. will be set aside for single use wilderness parks based on uninformed decisions. British Columbia has always had old growth forests and will always have old growth forests. It is up to us to decide if we have enough or if we need to set aside more and where these should be located.
>
> *Kevin Hunter,*
> *Share Our Resources, Port Alberni*

> The economic ability to promote the super-natural tourismness of our forest/jungle requires this a unique land base. The old growth forest represents a shelter/storage system for the life forms which may have been lost in previously logged areas. We may find out that our new forests are lacking characteristics we may prudently choose to reinnoculate them with. This would provide a further guarantee of success for our tree farms where the bulk of our economic future harvest will be achieved. Old growth should be budgeted into perpetuity. Our descendents will need these forests intact. Supplying international needs through liquidating these forests is no longer a short term option.
>
> *Sydney Haskell,*
> *Carmanah Forest Society*

6.3 SOCIAL CRITERIA

- Public support for the proposal: local, regional, and provincial (and in some cases, international)
- Heritage values represented in the area
- Relationship to native cultural requirements
- Accessibility to the proposed alternative users

> .....Public opinion polls carried out during the mid to late eighties have consistently shown an increased awareness of environmental issues among the general public. Rightly or wrongly, there is a developing groundswell of public opinion against contemporary timber management practices across Canada. The issue of old growth forests. and the need to set aside representative areas is becoming better known (though not necessarily better understood), And further delay in dealling with the issue may well create additional negative publicity, passive or active resistance in the field, and ultimately, further conflict between the two points of view.....
>
> *Julian A. Dunster,*
> *Simon Fraser University, Burnaby, B.C.*

7. PROPOSED ACTION PROGRAM FOR THE DEVELOPMENT OF AN OLD GROWTH STRATEGY

Participants in the Old Growth workshop were asked to respond to a document entitled: *"Suggested Components of an Old Growth Strategy and Organization Necessary to Take Action to Develop and Implement an Old Growth Strategy".*

Their recommendations are incorporated here into a proposed 1990 action program designed to take the next steps toward creating the formal strategy that all participants believe to be necessary.

MINISTRY OF FORESTS "OLD GROWTH STRATEGY PROJECT"

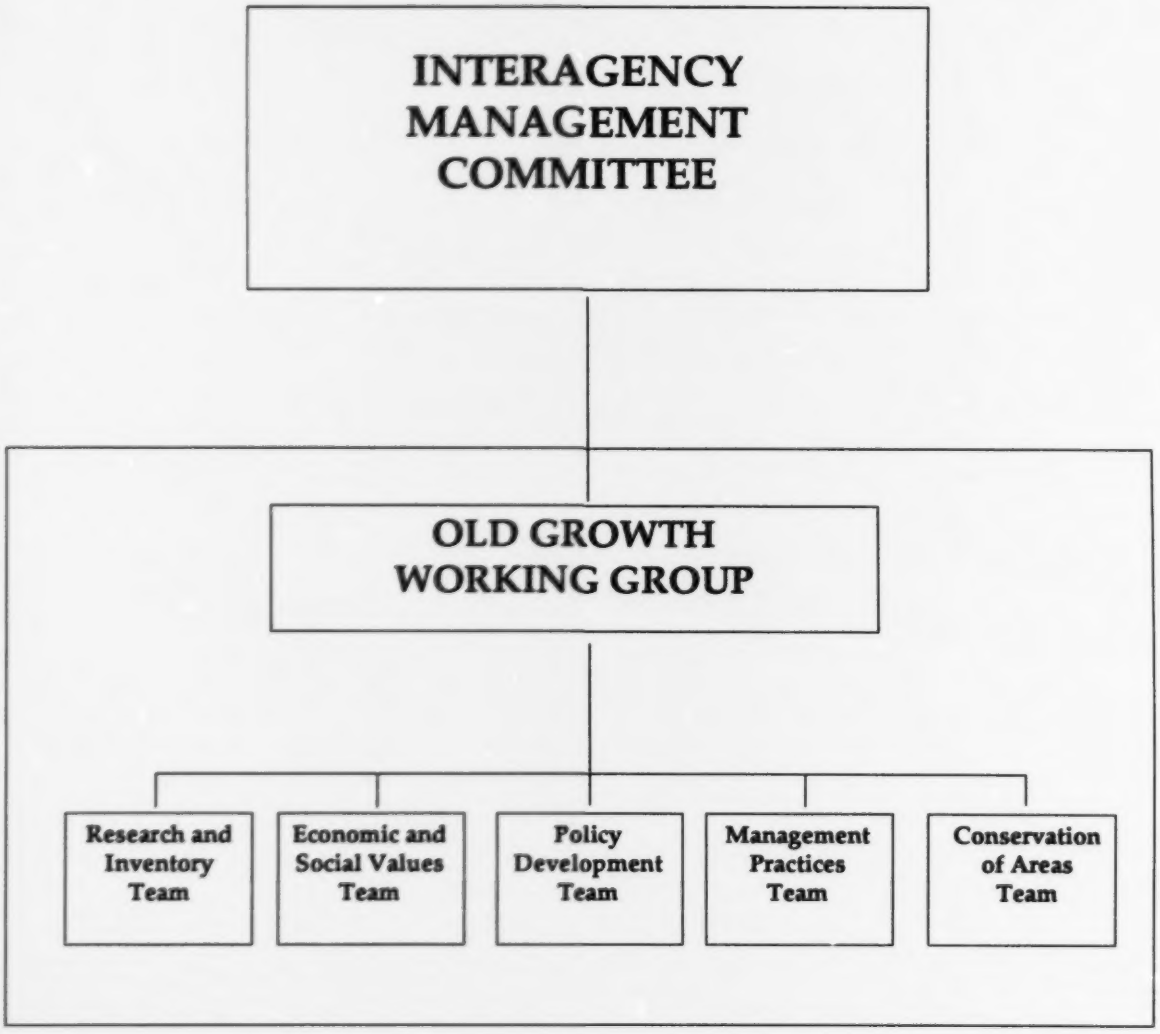
It is recommended that the Ministry of Forests through its Chief Forester initiate a formal Old Growth Strategy Project with the following structure and purposes (see diagram on page 33):

7.1 INTERAGENCY MANAGEMENT COMMITTEE

The Chief Forester should chair a project management group comprising representatives from Ministries having program interests in the project. It is suggested these include:

- Forests
- Parks
- Environment
- Regional and Economic Development

OLD GROWTH STRATEGY PROJECT PROPOSED STRUCTURE



Its role would be:

- to provide executive management of the project
- to ensure availability of human and financial resources
- to assist in defining the issues to be addressed
- to identify government technical personnel to be involved in working teams
- to ensure multi-agency cooperation in the implementation of results.

7.2 OLD GROWTH WORKING GROUP

This group to be made up of delegated representatives from the Inter-Agency Management Committee, the chairpersons of task-specific working teams, representatives of industry and of public interest organizations.

Its role would be to integrate the results of the working teams, to maintain adherence to a reasonable timetable, to ensure a responsive communications and public involvement program, and to decide the framework for progress and final reports of the project.

7.3 WORKING TEAMS

All working teams would be broadly reflective of government, industry, independent professionals, academic institutions, native groups, and public interest organizations, relevant to the team assignments. Participants would be identified in consultation with organized interest groups, in a manner similar to the Old Growth Workshop.

Five teams are suggested which would conduct their assignments concurrently and be integrated at the Working Group level:

7.3.1 Research and Inventory Team

Terms of reference would include the establishment of a formal research agenda, development of suitable old growth inventory processes, and establishment of detailed working steps to achieve the needed comprehensive definitions and data base to serve an Old Growth strategy.

7.3.2 Economic and Social Values Team

Terms of reference would include analysis of economic and social values represented in old growth and initiating the studies that are necessary to evaluate land use options involving old growth forests. The group would consider the economic and social impacts of old growth management and conservation options that would have impact on communities, employees, and future markets.

7.3.3 Policy Development Team

Terms of reference would include review of existing legislation, regulations and policies to determine their applicability to the protection and management of old growth. The group would identify gaps in administrative arrangements that need to be filled and develop suggestions for policy makers.

7.3.4 Management Practices Team

Terms of reference would include the identification of forest management, harvesting, silvicultural and protection practices that could be employed by government and industry to manage the commercial forest to perpetrate and protect old growth values. This group could also assist in identifying the applied research agenda that would advance forest management capability to use insights from old growth ecosystem processes in the sustainable management of commercial forests.

7.3.5 Conservation of Areas Team

Terms of reference would include the establishment of criteria for identifying and selecting areas for harvest deferral, transition zones, permanent reservation and intensive management for old growth values. This group would have short term responsibility for identifying critical areas for early action and long term responsibility for recommending a provincial framework for old growth reservation.

7.4 IMMEDIATE PREPARATIONS

In order for the teams to function effectively, some immediate preparatory work should be commissioned by the Ministry of Forests:

7.4.1 Inventory and Research

A small group of technical staff drawn from Forests and Environment should proceed immediately to test existing definitions of old growth against the current Forest Inventory system. The objective would be to provide the Research and Inventory Team with early rough estimates of how much old growth there is, where it is, and how well the forest inventory might meet the immediate needs for establishing boundaries of critical areas. It will also help to identify current and projected research activity in order to inform the teams promptly upon establishment.

7.4.2 Economic and Social Analysis

The Ministry should establish a Ministry - University group to identify important areas of economic and social analysis that can be commissioned immediately. These early studies would be designed to support and inform the Economic and Social Values Team as it begins its work.

7.4 3 Deferral Process

The Chief Forester, in consultation with appropriate other ministries should appoint a small group of technical staff to prepare a sound deferral process that can be easily invoked to place critical old growth areas under moratorium. This process should be of reasonable duration, and be responsive to affected parties. It is needed very early in the work of the Conservation of Areas Team.

7.4.4 The Ministries of Forests and Parks collaborate on revitalizing the Ecological Reserves Program

The workshop participants were of the common view that the Ecological Reserves Program could be usefully focussed on preserving old growth values, at least for purposes of biodiversity and research. Participants recommended that the two Ministries - Forests and Parks - move immediately to activate the ecoreserve process. This would involve assessing the existing stock of old growth now resident in reserves and collaborating on identifying important old growth areas as new candidates for ecoreserves.

The results of this early work would be integrated into that of the Conservation of Areas Team as it becomes established.

7.5 RESPONSIVE TERMS OF REFERENCE FOR WORKING TEAMS

All terms of reference for working teams should be elaborated in consultation with the eventual participants. The process of inviting participants and refining working objectives will require an initial period of adjustment to ensure that the whole operation reflects a consensus on both purpose and process.

7.6 SUPPORT FOR WORKING GROUPS

In order to function effectively, the teams will require government technical expert support, financial support for public participants and meeting costs, commissioned research and professional assistance with facilitation of the overall process.

7.7 SUGGESTED TIMETABLE FOR THE OLD GROWTH STRATEGY PROJECT

A suggested schedule for the project follows:

TARGET DATE	ACTION
1990	
February	• Commission the project
February	• Publish the Workshop Summary
February	• Initiate Preparations
March	• Finalize Working Team participants
March	• Initiate Working Teams

TARGET DATE	ACTION
March	• Progress Report outlining the terms of reference, membership, objectives and the means to be employed to achieve public involvement
March	• Progress Report on the short term preparations
June	• Progress Report on the early deliberations of the working teams and the conclusions of the preparatory work
December	• Develop interim conclusions from working teams and set opportunities for public discussion
1991	
February	• Second provincial Old Growth workshop
March	• Final Report delivering: • the summary of actions taken and objectives achieved from among the detailed assignments given to the working teams • summary of administrative actions taken by the participating Ministries to forward the old growth strategy in 1990 • any proposals for continuation of strategy development, or for implementation of team recommendations slated for early action

APPENDIX I

SUGGESTED CHECKLIST OF COMPONENTS FOR AN OLD GROWTH STRATEGY

SUGGESTED CHECKLIST OF COMPONENTS FOR AN OLD GROWTH STRATEGY

BASIC INFORMATION REQUIRED

1. Common language definitions used by members of the public to describe what they mean by old growth

2. Technical definitions of old growth and identification of attributes relevant to different zones for use in scientific studies, resource management, and in the forest industry

3. Ecological classification of old growth to reflect biogeoclimatic zone structure of the province

4. Basic research into ecosystem processes, natural disturbance regimes, genetic diversity, maintenance requirements, effects of fragmentation, sizes required to preserve stability, sizes adequate to protect dependent species, environment conditioning functions, carbon cycle implications

    - the research agenda
    - who will conduct the research?
    - priority needs
    - funding
    - timetable

5. Inventory and mapping of existing old growth under the various definitions in both TSA and TFL areas including audits of inventories. Old Growth should be a category in regular "state of the forest" reports.

6. Land status options by which current old growth can be managed

- Old growth should be specifically included in management and working plans dealing with environmentally sensitive areas within the working forest. The old growth areas identified then require more stringent operational rules.

7. Level of dependence of the forest industry and local communities on harvesting old growth in current tenures and the short/long term impacts of changes to old growth allocation

INHERENT VALUES AND MANAGEMENT OBJECTIVES

1. Ethical bases for human use of forests

2. Values to be served by maintaining a stock of old growth ecosystems

3. Management objectives which require old growth protection:
   - Community Stability
   - Aboriginal Culture
   - Wilderness and other Recreation
   - Tourism
   - Ecological Studies
   - Education
   - Forestry research
   - Biodiversity at genetic, species, ecosystem, and landscape levels
   - Wildlife
   - Fisheries
   - Watersheds
   - Climate
   - Pharmaceutical
   - Timber
   - Heritage
   - Employment

Assessment of the degree to which these objectives can be met within the commercially managed forest, and the degree of dependence on old growth

4. Compatible groupings of management objectives, recognizing variation in time and distribution over the landscape

5. Regional and community levels of planning integration required to achieve objectives

ASSESSMENT OF CANDIDATE AREAS FOR CONSERVATION AND MANAGEMENT

1. Identify priority candidate areas which require urgent attention due to location in tenures in which consumptive uses could permanently foreclose non-consumptive management options or which will result in serious fragmentation

2. Identify important but less urgent candidate areas located in tenures or reserves which act to protect old growth while management options can be studied at length

3. Conduct regional review of current cutting plans, especially in critical areas in order to address irreversible fragmentation

4. Reviews should:
   - be conducted in the context of an overall land use strategy
   - contain a process open to the public
   - have permanent registry and status reports
   - be driven by special objectives for land use

MANAGEMENT OPTIONS

1. Defer the exercise of tenured rights that would permanently alter the old growth ecosystems to allow for determination of appropriate balance of management activity in candidate areas

2. Designate and reserve areas bearing current or potential older forest stands to allow for specific ranges of management functions: non-destructive, partial and temporary disturbance, experimental manipulation or liquidation according to compatible groups of management objectives

   Develop a system of tenure deferrals to allow for assessment prior to removal of timber from AAC

3. Establish buffer zones:
   - to limit the impact of other management activities that could threaten the integrity of candidate or reserved areas
   - in which management pracitces are modified to create areas of transition between core reserve areas and those totally committed to commercial plantations

4. Address old growth objectives within existing tenures, but licence holders need clarification of roles and requirements for management of old growth. The old growth objectives need to be made more explicit within an overall land use strategy

5. Manage ecosystems to achieve "old growth conditions" suitable for some management objectives

6. Include Old Growth conservation and management explicitly within the concern of TSA and TFL Management and Working Plans

ADMINISTRATIVE MECHANISMS FOR CONSERVATION AND MANAGEMENT: CURRENT MECHANISMS AND DEVELOPMENT NEEDS

1. Legislation:
   - Old Growth and Wilderness policy should be made explicit within the Forest Act and staff budget allocations made sufficient to the degree of management effort implied

2. Regulations and enforcement

3. Policy and procedures

4. Interagency planning and cooperation with licence and tenure holders to achieve explicit understanding of Old Growth objectives

   Framework required:
   - Inventory
   - Evaluation
   - Planning
   - Linked operations

5. Tenure arrangements

6. Administration and monitoring of field practices

7. Integration of old growth management planning into a Provincial Land Use Strategy

8. Extension services and education process to encourage better management of old growth

PUBLIC INVOLVEMENT

1. Development of policy reflecting social, economic, and community values

2. Systematic involvement in the planning phases on a regular basis, and review of management plans

3. Identification of candidate areas for conservation and the design of reserves through an open process

4. Selection of management objectives and establishment of practice guidelines for specific old growth areas

5. Monitoring of actual management activity and field practices

6. Problem solving and conflict resolution by broad-based working groups involved early and regularly - heirarchy of mechanisms from informal to formal or legal

7. Incorporating public participation into all aspects of land use planning, including:

    - specific mechanisms to provide for organized local community role in forest resource planning
    - funding of NGO and public participation
    - structured process of decentralization

8. Assessing the social, economic, and employment impact of different strategies for reserving or managing old growth.